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PLANES USED TO SPOT FISH IN SOVIET FAR EAST

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Frequent fogs and winds, high mountains, heavy surf, deep air pockets near the craggy shores, and the long distances which planes must cover all make aerial spotting in the Far East extremely complicated and difficult.

In 1947 the Air Section of the Glavprimorryburom (Main Administration of Primorskiy Kray Fishing Industry) was assigned the job of spotting mackerel schools. From the end of June through 25 August, aircraft methodically located dense schools of mackerel in the Gulf of Petr Velikiy, and directed seiners to them for the netting. Weather conditions over Primorskiy Kray at that time of the year, and the fact that the schools of fish swam close to the surface of the water, favored successful spotting.

The same year, experimental aerial searches were also carried out for schools of feeding herring in Pacific Ocean waters along the Kamchatka east coast. This was the first aerial spotting of feeding herring ever conducted in the USSR.

The flights were begun 20 July using a fast plane. The area from the Gulf of Kronotskiy south to Cape Lopatka was searched. These flights were not very successful. Two schools of herring were spotted in deep water on one day of the operations, but were lost when the plane circled back. It became obvious that this fast plane (about 300 kilometers/hour) had too large a turning radius to be employed in fish spotting as it is ordinarily done. It was exchanged for a slower plane.

On 19 August, the first herring schools were discovered in the vicinity of Starichkov Island, and in the area farther south. A typical observation was the discovery over a distance of 15 kilometers of about 20 comparatively small schools, each 20-40 meters in diameter, in groups of three to five schools each. Several of these schools were on the surface, while others

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were swimming at a depth of [illegible] meters. When the plane appeared at an altitude of about 200 meters the schools became agitated, changed their shape, and dove deep. On each subsequent flight, herring schools of greater or lesser density were spotted. Almost always, flocks of sea gulls and herds of sea lions were found near the schools. It is interesting that schools of fish swimming on the surface were sometimes completely obscured by gulls sitting over them.

Plans for combined action of plane and fishing boats were worked out and the second phase of the work began--leading the boats to the schools. On one flight, herring were discovered at Cape Otvesnyy, Vimochinskaya Bay. The Kawasaki ship Shevchenko /a ship built at the Kawasaki shipyards, Japan/, which was near by, was summoned by the conventional signals, and the plane began to lead her in. As the ship drew near, however, the school dove, and the Shevchenko passed over without seeing it, although the fish were still visible from the plane. The same thing happened when the seiner Blok was being directed.

From the series of spotting flights conducted in this area, certain conclusions were reached with regard to herring behavior and methods of using the aerial spotting data for fishing operations. For example, in contrast to the Caspian sprats and Black Sea northern pilchards, schools of feeding Kamchatka herring react very sensitively to the sound of an airplane, even at 200-250 meters altitude, and dive deep after one or two swings of the plane. Therefore, the usual methods of guiding fishing boats to the school, i. e., diving, and releasing flares over the school, are not suitable here.

Installing low-power ultrashort-wave radios in the airplane and in small fishing boats was suggested. Operating on radiotelephone, these sets would permit the plane to direct the ship from an altitude of 400-500 meters. If the school should be alarmed by the noise of the boat's propeller and begins to dive, the nets must be cast blind, under instructions from the airplane. For this reason, the air crews will have to be very familiar with netting methods in order to direct the ship to the proper point for encirclement at the proper time.

This idea was not tried in 1947. Orders have now been given to experiment with radio communications. If the experiments are successful, daytime fishing for Kamchatka herring will continue. Until now, feeding herring were only taken at night, as a rule, with their movement being determined by the phosphorescence of the water.

The main job of air spotting should be the regular searching of areas of herring concentration for purposes of prediction, and for the proper disposition of the fishing fleet. In this connection, air spotting should supplement ship reconnaissance, and the two should work in close contact with each other.

Let us introduce a few examples of the use of ordinary air spotting data:

1. In 1947, it was supposed that the herring along the southeastern coast of Kamchatka were concentrated in the Gulf of Kronotskiy, that is, north of Avachinskaya Bay. Aerial spotting in August revealed, however, that the herring were actually in the Starichkov Island-Velyuchinskaya Bay area, south of Avachinskaya Bay.

2. A stationary net was put out off the eastern or sea side of Starichkov Island in 60 meters of water. The main lines of the net were disposed in an east-west direction. At the time of the flight, it was observed that herring were moving past the island not on the eastern

side, as supposed, but on the western or land side, where they would miss the net entirely. Consequently, the net had to be reset.

3. The decision was reached, that daytime herring fishing off Kamchatka during the autumn had been relatively unsuccessful not because the fish were swimming deep in the water but because they dove deep when frightened by the fishing boat's propeller. It was decided that after the plane had led the boat to a point near the school, the boat should then drift over it, employing drift nets in addition to bag-type casting nets.

So far, aerial spotting has not been employed by the newly organized herring-fishing expedition in Olyutorskiy Gulf in northeastern Kamchatka. Plans have been made to begin combined ship and plane spotting operations there by 1 August 1948 to determine the profitableness of fishing in these waters.

Aerial spotting for herring should also be undertaken in spring in southern Sakhalin waters. Controlled daily observations along the shores of the island should yield useful information on the migratory habits of the herring.

Aerial spotting of whales, soon to be undertaken, would save time in finding them, and would enlarge the catch. The plane's work, as in herring spotting, would consist of finding whales and leading the whalers to them. Simultaneously, the aerial crews could observe the presence and number of sea animals or the ice in the Sea of Okhotsk.

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